

OkiLAN 7120e Network Print Server

Network User's Guide



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Document Information

OkiLAN 7120e Network User's Guide

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CONFIGURATION

Introduction

The OkiLAN 7120e is a fast 100BASE-TX/10BASE-T network interface card for a range of Oki printers. This user's guide explains the functionality of the OkiLAN 7120e.

Access for interconnection and producing self-diagnostic test and configuration printouts is provided via an interface panel at the rear of the printer.

This network interface card supports IEEE802.2, IEEE802.3, Ethernet-II and SNAP and can detect those frame types automatically.

Also, the interface card supports major protocols such as TCP/IP, IPX/SPX (NetWare) and NetBEUI.

This section details the OkiLAN 7120e specification and several software utilities.

Specification

Frame types	IEEE 802.2 IEEE 802.3 Ethernet-II, SNAP, AUTO
Network interface	100BASE-TX 10BASE-T
Network protocols	TCP/IP Network layerARP, RARP, IP, ICMP Session layerTCP, UDP Application layerLPR, FTP, HTTP, IPP, BOOTP, DHCP, SNMP, DNS, SMTP, SLP IPX/SPX (NetWare) Remote printer mode (up to eight file servers and 32 queues) Print server mode over IPX/SPX (up to eight print servers) Encrypted password supported in print server mode SNMP NetBEUI SMB, NetBIOS, WINS
Functions	Self-diagnostic test printing Banner supported Monitoring/configure by Web browser Printer status notification by E-Mail

Self-diagnostic test

With the printer power switched on, press the push-button on the network interface panel (at the rear of the printer) for more than three seconds and release. The self-diagnostic test results and configuration settings are printed.

Printed self-diagnostic test sample

```
EthernetBoard OkiLAN 7120e Ver 1.0.0
*** Diagnostic report ***
ROM Check : OK   stat: EE69 FFFF 0000 0000
RAM Check  : OK   stat: 0000 0000 0000 0000
NIC Check  : OK   addr: 00:80:92:12:34:56100 Base-TX [100Full]
EEPROM Check : OK   stat: 80A9 80A9 0000 0000

DIPSW1 : OFF(ON:Test use only)
DIPSW2 : OFF(ON:Initialize configuration)
DIPSW3 : OFF(ON:Diagnostic/Configuration print)
DIPSW4 : OFF(ON:Reserved)
```

From this the Ethernet address is: 00:80:92:12:34:56

Restrictions

1. The printer can not receive data from either the Centronics or the USB interfaces with OkiLAN 7120e installed. To use these remove OkiLAN 7120e.
2. Set "Buffer Print" in the printer menu "I-Prime". Missing data or other unexpected problem occurs when anything else ("Invalid" or "Buffer Clear") is selected.
3. When the printer is off-line, the status displayed on WEB/AdminManager/TELNET may not be correct.
4. The link address is the same.
5. When large amounts of data are sent via FTP or IPP, time out may occur on the application side.

Configuration utility

Available utilities

You can configure the OkiLAN 7120e by using one of the following methods:

Utility	Features	System requirements
Quick Setup	Configure the OkiLAN 7120e easily and simply without installing any software packages into your system. You can set the following: Enable/disable TCP/IP, NetWare, EtherTalk, NetBEUI protocols. <ul style="list-style-type: none">> Set IP address, Subnet Mask and Gateway for TCP/IP manually or by using DHCP.> Set NetWare Mode and create Queue/Print Server/Printer objects.	Windows95/98/Me/NT4.0/2000/XP (TCP/IP protocol or IPX/SPX protocol should be installed). To create a NetWare queue, NetWare Client 32 or IntranetWare Client should be installed in your system.

Utility	Features	System requirements
AdminManager	Configure the OkiLAN 7120e in detail.	Windows95/98/Me/NT4.0/2000/XP (TCP/IP protocol or IPX/SPX protocol should be installed). To create a NetWare queue, NetWare Client 32 or IntranetWare Client should be installed in your system.
Web browser	Configure the print server and printer by using a Web browser such as Microsoft Internet browser or Netscape Navigator.	Microsoft Internet Explorer Version 3.0 and higher or Netscape Navigator Version 3.0 and higher. Operating system that supports Web browser.
SNMP	The printer and print server can be controlled using third-party vendor developed SNMP application.	Third-party vendor developed SNMP application.
OkiLAN Setup Utility for UNIX	Configure print server using character-base user interface.	Solaris 2.6 (Sparc)/SunOS 4.1.3/HP-UX 10.20/SuSE Linux 8.1/RedHat Linux 7.2 and 8.0. To configure network interface cards, "root" privilege is required.

Using Quick Setup

Quick Setup utility allows you to configure the OkiLAN 7120e easily and simply without installing any software packages.

You can configure the following:

- > Enable/disable TCP/IP, NetWare, NetBEUI protocols.
- > Set IP address, Subnet Mask and Gateway for TCP/IP manually or by using DHCP.
- > Set NetWare mode and create Queue/Print Server/Printer objects.

Configuration requires a PC with Windows 95/98/Me, Windows 2000 Advanced Server/Professional or Windows NT Server 4.0/Work-station 4.0, Windows XP running TCP/IP or IPX/SPX (NetWare).

This utility can only be used on a PC that can be connected to the network with TCP/IP or IPX/ SPX.

This utility must be used on a PC that is located in the same segment as the printer. To create a NetWare queue, NetWare Client 32 or IntranetWare Client should be installed in your system.

The following explanation uses Windows 98 as an example.

1. Insert the CD-ROM into the CD-ROM drive. The Setup Utility starts automatically. If it does not start, double-click *autorun.exe* on the CD-ROM.
2. Select [Optional Utilities].
3. Select [Install Network Setup Utility].
4. Select the appropriate language.
5. Select [OKI Device Quick Setup].
6. Follow the on-screen instructions.
 - > The NetWare Client 32 or IntranetWare Client should be installed on the PC used for the creation of network queues. Installation enables the user to create network queues and perform other functions.
7. If the settings are correct, click [Execute]. The new settings are transmitted to the network card but the network card is still operating with pre-transmission settings.
8. Click [Finish] to validate the new settings. Depending on the model, the printer may have to be switched off and on again.

Using AdminManager

AdminManager is a powerful Microsoft Windows-based utility to configure all of OkiLAN 7120e's functions easily and intuitively by using a graphical user interface. (AdminManager can also be used with OkiLAN 7100e, 7100e+, 7200e, 7300e and 8100e network cards.)

Configuration requires a PC with Windows 95/98/Me, Windows 2000 Advanced Server/Professional or Windows NT Server 4.0/Work-station 4.0, Windows XP running TCP/IP or IPX/SPX (NetWare).

This utility can only be used on a PC that can be connected to the network with TCP/IP or IPX/ SPX and must be used on a PC that is located in the same segment as the printer.

To create a NetWare queue, NetWare Client 32 or IntranetWare Client should be installed on to your system.

The following explanation uses Windows 98 as an example.

Installation

1. Insert the CD-ROM into the CD-ROM drive. The installation starts automatically. If it does not start, double-click autorun.exe on the CD-ROM.
2. Select [Optional Utilities].
3. Select [Install Network Setup Utility].
4. Select the appropriate language.
5. Select [OKI Device Standard Setup].
6. Follow the on-screen instructions. If you want to install AdminManager on to your local drive, select [Install and Execute]. Otherwise, select [Execute from CD-ROM].
7. To run AdminManager, check [Yes] for [Do you wish to execute AdminManager?] and click [Finish]. Otherwise, uncheck [No] and click [Finish].

The following explanation of AdminManager is based on when OkiLAN 7120e is selected. When the other OkiLAN network cards such as OkiLAN 8100e is selected, the displayed information and available tabs are different. Refer to each network card manual for these items.

Interface

Select [Start]-[Programs]-[Oki Setup Utility]-[Admin Manager].

File menu

In the [File] menu, the following item can be selected:

Item	Function
Search	Search printers in your network and list all printers that have the OkiLAN 7100e, 7100e+, 7120e, 7200e, 7300e and 8100e installed.

Status Menu

In the [Status] menu, the following items can be selected:

Item	Function
Printer Status	Current printer status is displayed.
System Status	Displays current OkiLAN 7120e configuration. Configuration data can be saved as log file.
List of Configuration Items	Displays current OkiLAN 7120e configuration. Configuration data can be saved as log file.,.

Setup Menu

In this menu, the following items can be selected:

Item	Function
Oki Device Setup	Configure the Configure the currently selected network card.
Setup by HTTP	Launch the default browser in your environment to access the selected printer's web page.
Setup by TELNET	Launch TELNET application in your environment to access the selected printer's TELNET port. Note: The TELNET application is not included as part of the OkiLAN 7120e package. Install the TELNET package on to your system. For further information, see your Windows manual.
Create NetWare Queue	Create a NetWare queue.
Delete NetWare Object	Delete NetWare object.
Reset	Reset the selected network interface card.
Test Print	Print self-diagnostic test pages.
IP Address Setup	Set static IP address of network interface card manually.

Oki Device Setup

Oki Device Setup allows you to configure the print server. Type the root password (default value is the last 6 characters of the MAC address) to configure. Remember that the root password for AdminManager and FTP is *case sensitive*, and if the MAC address contains any alpha characters, type them as *upper case*. Oki Device Setup contains details for the following selectable tabs:

- > General
- > TCP/IP
- > NetWare

- > NetBEUI
- > SNMP
- > SMTP
- > Maintenance
- > Printer Port

The following section explains each tab's functionality. Depending on your printer, some items in the following explanation may not be displayed.

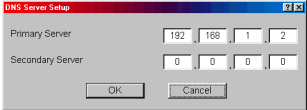
General Tab

This allows you to set or change the root password used for Admin Manager and FTP.

Location	Comments
Change root password	You can set/change the root password for AdminManager and FTP.

TCP/IP Tab

This allows you to configure TCP/IP related items.

Location	Comments
Use TCP/IP Protocol	Set TCP/IP protocol as enabled/disabled.
Use DHCP/BOOTP	Check this item if IP address, subnet mask, default gateway and IP addresses for DNS primary server and secondary servers are retrieved from the DHCP or BOOTP server. Otherwise, uncheck.
Use RARP	Check this item if IP address is retrieved from the RARP server. Otherwise, uncheck.
IP Address	Set the IP address of the selected network interface card.
Subnet Mask	Set the subnet mask of the selected network interface card.
Default Gateway	Set the default gateway of the selected network interface card.
Use FTP/LPD Banner	Check this item if you want to add the FTP/LPD banner. Otherwise, uncheck.
DNS Server...	Set IP addresses for DNS primary and secondary servers. 

Location	Comments	
WINS Server...	Set IP addresses for WINS primary and secondary servers; set scope ID	

Netware Tab

This is where you can configure NetWare related items.

Location	Comments	
Use NetWare Protocol	Set NetWare protocol as enabled/disabled.	
Print Server Name	Set Print Server name.	
Frame Type	Set primary NetWare frame type.	
Operation Mode	Set NetWare mode.	
Check box besides Bindery Setup	Check if you want to use the Bindery mode and Bindery Setup button becomes available. If it is unchecked, the button is greyed out.	
Bindery Setup	Configure items related to Bindery mode. In this dialogue box, the following items can be configured.	
	Password.	Set password for Print Server.
	Job Polling Time.	Set print job polling interval in seconds.
NDS Setup	Set NDS tree and context where Print Server was created.	
RPRINTER Setup	Available if you select RPRINTER mode in Operation Mode. By selecting the [RPRINTER] button, this is displayed:	
	Available print server and Selected print server	Select file servers to connect. Up to eight print servers can be selected.
	Time Out	Set duration from the last data's arrival to freeing of the port in seconds.
Printer Name	Set the NetWare printer object name.	

NetBEUI Tab

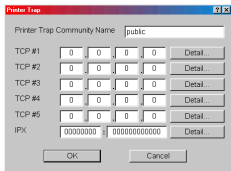
This allows you to configure NetBEUI related items.

Location	Comments
Use NetBEUI Protocol	Set NetBEUI protocol to enabled/disabled.
Short Printer Name	Set a computer name for the print server.
Workgroup	Set a work group name to which the print server belongs.
Comment	Set the comments for the print server.

SNMP Tab

This allows you to configure SNMP related items.

Location	Comments	
Authentic Community	This community name is used to check whether incoming SNMP requests have the correct community name or not. The community name is displayed as ***** for security reasons.	
TRAP Community	This community name is assigned to outgoing system traps such as cold start, authentication failure, etc.	
TRAP Address	Set a destination IP address of a Trap packet. If 0.0.0.0 is set, the Trap is disabled.	
MIB-II Parameters	The following items can be configured	
	SysContact	Set SysContact (printer manager) name.
	SysName	Set SysName (printer model name).
	SysLocation	Set SysLocation (the location where the printer is installed).
	Default TTL	
	Enable Authentic Trap	Set TTL (Time To Live) value. Set Authentic Trap to enabled/disabled.

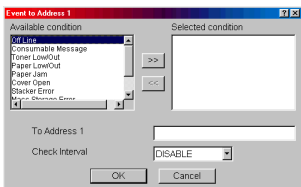
Location	Comments	
Printer Trap Setup . . .	By selecting the button, the following dialogue box is displayed: 	
In the dialogue box, the following items can be configured:		
Printer Trap Community Name	This community name is assigned to outgoing printer status traps such as off-line, paper out, etc.	
TCP#1—5	Set the IP address to which a Trap packet will be sent. You can set up to five IP addresses.	
Detail . . .	In the dialogue box, the following items can be configured:	
	Trap Enable	Set sending a Trap packet, enabled or disabled, for each destination.
	On-line	Set sending a Trap, enabled or disabled, when the printer turns to ON-LINE.
	Off-line	Set sending a Trap, enabled or disabled, when the printer turns to OFF-LINE.
	Paper Out	Set sending a Trap, enabled or disabled, when paper is out.
	Printer Error	Set sending a Trap, enabled or disabled, when the printer error occurs.
	Exit JAM	Set sending a Trap, enabled or disabled, when an Exit JAM occurs.

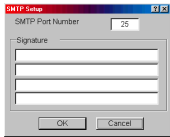
Location	Comments		
Printer Trap Setup . . .	Detail . . .	Insert JAM	Set sending a Trap, enabled or disabled, when an Insert JAM occurs.
		Park JAM	Set sending a Trap, enabled or disabled, when a Park JAM occurs.
		Paper Lever ALARM	Set sending a Trap, enabled or disabled, when a Paper Lever Alarm occurs.
		Cover Open	Set sending a Trap, enabled or disabled, when the printer cover opens.
		Feed JAM	Set sending a Trap, enabled or disabled, when an Feed JAM occurs.
		Ribbon JAM	Set sending a Trap, enabled or disabled, when an Ribbon JAM occurs.
		Paper JAM	Set sending a Trap, enabled or disabled, when an Paper JAM occurs.
	IPX	Set node address and network address to which a Trap packet will be sent.	
	Detail . . .	By selecting the button, the following items can be configured:	
		Trap Enable	Set sending a Trap packet, enabled or disabled, for each destination.
		On-line	Set sending a Trap, enabled or disabled, when the printer turns to ON-LINE.
		Off-line	Set sending a Trap, enabled or disabled, when the printer turns to OFF-LINE.

Location	Comments		
Printer Trap Setup . . .	Detail . . .	Paper Out	Set sending a Trap, enabled or disabled, when paper is out.
		Printer Error	Set sending a Trap, enabled or disabled, when the printer error occurs.
		Exit JAM	Set sending a Trap, enabled or disabled, when an Exit JAM occurs.
		Insert JAM	Set sending a Trap, enabled or disabled, when an Insert JAM occurs.
		Park JAM	Set sending a Trap, enabled or disabled, when a Park JAM occurs.
		Paper Lever ALARM	Set sending a Trap, enabled or disabled, when a Paper Lever Alarm occurs.
		Cover Open	Set sending a Trap, enabled or disabled, when the printer cover opens.
		Feed JAM	Set sending a Trap, enabled or disabled, when an Feed JAM occurs.
		Ribbon JAM	Set sending a Trap, enabled or disabled, when an Ribbon JAM occurs.
		Paper JAM	Set sending a Trap, enabled or disabled, when an Paper JAM occurs.

E-mail (Send) Tab

In E-mail (Send) tab, you can configure SNMP related items.

Location	Comments			
Use SMTP Transmit Protocol	Set sending E-Mail via SMTP, enabled or disabled.			
SMTP Server Address/Name	Set IP address or host name of SMTP server.			
Reply-To Address	Set the E-Mail address that is used in the [Reply-To] field in the mail header.			
E-Mail Address	Set the E-Mail address that is used in the [From] field in the mail header.			
1—5	<p>By selecting each button, the following dialogue box is displayed:</p> <div></div> <p>In the dialogue box, the following items can be configured:</p> <table><tr><td>Available condition and Selected condition</td><td>Select each E-Mail alert condition. Select a condition from Available Condition list and click >> button. The selected condition is copied to Selected condition list. Available conditions are: On-line, Off-line, Paper Out, Printer Error, Exit JAM, Insert JAM, Park JAM, Paper Lever Alarm, Cover Open, Feed JAM, Ribbon JAM and Paper JAM.</td></tr></table>		Available condition and Selected condition	Select each E-Mail alert condition. Select a condition from Available Condition list and click >> button. The selected condition is copied to Selected condition list. Available conditions are: On-line, Off-line, Paper Out, Printer Error, Exit JAM, Insert JAM, Park JAM, Paper Lever Alarm, Cover Open, Feed JAM, Ribbon JAM and Paper JAM.
Available condition and Selected condition	Select each E-Mail alert condition. Select a condition from Available Condition list and click >> button. The selected condition is copied to Selected condition list. Available conditions are: On-line, Off-line, Paper Out, Printer Error, Exit JAM, Insert JAM, Park JAM, Paper Lever Alarm, Cover Open, Feed JAM, Ribbon JAM and Paper JAM.			
1-5	To Address 1—5	Set E-Mail addresses to that E-Mail should be send. Up to five E-Mail addresses can be set.		
	Check Interval	Set interval that the OkilAN 7120e checks specified event(s). An E-Mail is sent when specified event(s) occurs when DISABLE is selected.		

Location	Comments				
Advanced . . .	<p>By selecting the button, the following dialogue box is displayed:</p>  <p>In the dialogue box, the following items can be configured:</p> <table> <tr> <td>SMTP Port Number</td><td>Set port number of SMTP.</td></tr> <tr> <td>Signature</td><td>Set up to four signature lines. Signatures added to the bottom of an E-Mail.</td></tr> </table>	SMTP Port Number	Set port number of SMTP.	Signature	Set up to four signature lines. Signatures added to the bottom of an E-Mail.
SMTP Port Number	Set port number of SMTP.				
Signature	Set up to four signature lines. Signatures added to the bottom of an E-Mail.				

Maintenance Tab

Location		Comments	
Service	Use TCPIP Protocol	Set TCPIP Protocol, enabled or disabled.	
	Use NetBEUI Protocol	Set NetBEUI Protocol, enabled or disabled.	
	Use FTP Service	Set FTP service, enabled or disabled.	
	Use TELNET Service	Set TELNET service, enabled or disabled. (Not supported.)	
	Use Web Service	Set Web service, enabled or disabled.	
	Use SNMP Service	Set Web service, enabled or disabled.	
	Use STMP Service	Set Web service, enabled or disabled.	
IP Filter Setup...	Use IP Filter	Set IP filtering, enabled or disabled.	
	Admin IP Address	Set one IP address excluding this filtering functionality.	
	IP Filter Range 1 – 10	Select the 10 IP address ranges (Range 1 has the lowest priority and Range 10 has the highest priority). For each range,	
		Start Address	Set the starting and end addresses.
		End Address	
		Printing	Select when printing access is permitted from the range. Select when configuration access is permitted from the range.
		Configuration	

Printer Port Tab

Location	Comments	
IP Port	BOJ String	<p>Set an appropriate command sequence to be sent to the connected printer before printing job when data is sent to lp logical printer port.</p> <p>Any alphanumeric and following control characters up to 31 characters can be used:</p> <p>\bBackspace(0x08)</p> <p>\tTab (0x09)\nLinefeed(0x0a)</p> <p>\vVertical tab (0x0b)</p> <p>\fForm feed (0x0c)</p> <p>\rCarriage return (0x0d)</p> <p>\xnnHex code [nn] (0xnn)</p> <p>\]Double quote (0x22)</p> <p>\\Backslash (0x5c)</p>
	EOJ String	<p>Set an appropriate command sequence to be sent to the connected printer before printing job when data is sent to lp logical printer port. The available string is the same as BOJ String.</p>
euc/sjis Port	BOJ String	<p>Set an appropriate command sequence to be sent to the connected printer before printing job when data is sent to euc/sjis logical printer port.</p> <p>The available string is the same as lp Port-BOJ String.</p>
	EOJ String	<p>Set an appropriate command sequence to be sent to the connected printer after printing job when data is sent to euc/sjis logical printer port.</p> <p>The available string is the same as lp Port-BOJ String.</p>
	Tab Size	<p>Set tab size when data is sent to sjis/euc logical printer port. The options available are from 0 to 16 (default 8). The value 0 does not convert any tabs.</p>

Location	Comments	
	Page Width	Set page width when data is sent to sjis/euc logical printer port. If the width of one line exceeds this value, Carriage Return and Line Feed are inserted automatically. The options available are from 0 to 255 (default 78). The value 0 means no limitation of the line width.
	Page Length	Set page length when data is sent to sjis/euc logical printer port. If the width of one line exceeds this value, Carriage Return and Line Feed are inserted automatically. The options available are from 0 to 255 (default 66). The value 0 means no limitation of the page length.
Parallel Port Detail...	Bi-directional Mode	Set the interface mode between OkiLAN 7120e and the printer. Normally no need to change this setting. Leave at 1284-Std. As bi-directional printing is not performed when Compatible is set, the printer status and menu setting cannot be retrieved, but print jobs can be sent to the printer. The 1284-ECP mode is the same as 1284-Std for currently supported printers.
	Centronics I/F Timing	Adjust Centronics interface timing between the OkiLAN 7120e and the printer when 1284-Std or Compatible mode is set in bi-directional mode. There is normally no need to change this setting. Keep at NORMAL for currently supported printers.

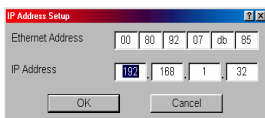
Setup by HTTP

This selection opens the printer's web page. Log in to view and change printer and print server settings. You can also view the printer status and perform certain maintenance functions. The username is [root]. The default web password is the last six characters of the Ethernet (MAC) address (case sensitive: any alphabetical characters must be in upper case).

IP Address Setup

If you only use TCP/IP and the print server has not yet been configured, occasionally it may not be displayed on AdminManager. The IP address can be configured by this function.

1. Select [IP Address Setup] from the [Setup] menu.
2. Set [Ethernet Address] and [IP Address] and select [OK].



- > The Ethernet Address (MAC address) is displayed during the self-diagnostic test.
3. AdminManager asks whether you want to initialise the network interface card or not. Select [Yes]. Even if you select [No] here, the IP address that you set can be used after turning the printer OFF and ON.

Option Menu

In the [Option] menu, the following item can be selected:

Item	Function	
Use TCP/IP Protocol	If this item is selected, AdminManager uses TCP/IP protocol to search/configure network interface cards.	
Use IPX/SPX Protocol	If this item is selected, AdminManager uses IPX/SPX protocol to search/configure network interface cards.	
Environment Setup	TCP/IP Tab	Set broadcast addresses that are used to search Oki network interface cards using the TCP/IP protocol. If [Use TCP/IP protocol] is unchecked, the search will not be carried out using TCP/IP.
	NetWare Tab	Set network addresses that are used to search Oki network interface cards via NetWare protocol. If there any many NetWare file servers on your network, specify the network address to which the network card belongs. If [Use NetWare protocol] is unchecked, the search will not be carried out using NetWare, but if [Auto Search] is selected, AdminManager will search all networks that AdminManager can detect.
	SNMP Tab	
	TimeOut Tab	[Search Every]: Set response waiting time from a network card in seconds. [Time Out]: Set time out between AdminManager and the network interface card in seconds. [Retry]: Set how many times the retry will be carried out between AdminManager and the network interface card.

Help Menu

In the [Help] menu, [About] is available as well as revision information for AdminManager.

Using a Web browser

If the OkiLAN 7120e is connected to the network using TCP/IP, its settings and the printer menu settings can be configured using a Web browser,

such as Microsoft Internet Explorer Version 3.0 and higher, or Netscape Navigator version 3.0 and higher. No guarantees are offered for other browsers. Refer to the relevant manuals for details of how to launch and use the browser.

Web User Name and Password

To apply configuration changes using a Web browser, you will be prompted for a username and password. The username is [root]. The default Web password is the last six characters of the Ethernet (MAC) address (any alpha characters must be in upper case). This item is case sensitive and can be different from the password set for AdminManager, FTP or TELNET.

The root password can be changed to allow you to configure the OkiLAN 7120e and printer by using a Web browser. To change the root password, select "Password Configuration" in the Maintenance tab and follow the on-screen instructions.

The network addresses used in this manual are shown as examples only. Network addresses used in your installation must be generated from your own network.

1. Configure the IP Address, Subnet Mask and Gateway for the network card. Launch the Web browser, enter the IP Address of the network interface card in [Address (Location/Position)] and press the [Enter] key. The Printer Status screen is displayed.
2. Select a tab and items to be changed in the left frame. You need to log in as "root" to be able to configure all items. Non-root users cannot configure all items.
3. To ensure correct operation, follow the procedure below for the appropriate network browser.
4. After making changes, click [Submit].

Microsoft Internet Explorer

- a. Select [Internet Options] in the [Tools] menu.
- b. Click on the [General] tab and click [Settings] in [Temporary Internet files].
- c. Select [Every visit to the page] in [Check for newer versions of stored programs].

Netscape Navigator

- a. Select [Settings] in the [Edit] menu
- b. Click [Cache] in [Details].
- c. Select [Once per session] in [Document in cache is compared to document on network].
- d. If you change the window size of the browser immediately after changing the configuration, the [Security information] may be displayed. Uncheck [Display this message next time] in the dialogue.

Using SNMP

The printer and network card can be managed via standard third-party SNMP management software. The network card supports SNMPv1, MIB-II and Oki Data Private MIB. In order for the print server to be managed correctly from SNMP software, the Oki Private MIB needs to be added to that software. Please refer to the documentation for your SNMP management software for information on how to do this.

The Oki Private MIB file can be found in the \utilities\MIB\ folder on the CD- ROM that came with your printer. Please refer to the readme file in the MIB folder for further information.

The printer's trap address can be set in five places using TCP/IP and in one place with IPX.

Printer trap settings can be made with a Web browser.

Management utility

PrintSuperVision

PrintSuperVision is a web-based application for managing printing devices connected to a network. It consists of two parts:

A web application based on Microsoft web server (Internet Information Server, IIS or Personal WEB Server, PWS), that provides the user interface.

A monitoring program (PrintSuperVisor) that runs all the time, collecting data and saving it in a database for statistical reports and sending E-Mail alerts based on the saved configuration.

PrintSuperVision requires the .NET environment to be installed on the PC on which it runs. The supplied installer will install this if necessary.

PrintSuperVision's main functions are:

- > Maintaining the list of printing devices and organising them in logical groups.
- > Initially discovering and configuring printers connected to the network.
- > Locating printers visually on maps.
- > Monitoring devices over time and saving data for statistical reports.
- > Sending email alerts when events occur that affects the functionality of printers.
- > Statistical reports about usage of printers.
- > Tracking maintenance data related to printers.
- > Identifying part numbers of consumable items for use with your printer.
- > Integrating with Oki Data's on-line web support (for US and Canada).
- > PrintSuperVision can even manage printers on another network provided a copy of PrintSuperVision is also running on that network.

System requirement

Windows

The main PrintSuperVision application can be installed in any of the following Windows systems.

Operating System	Service Pack	IIS ¹	MDAC and .Net Framework
Windows 2003 Server 1. Web Edition 2. Standard Edition 3. Enterprise Edition 4. Datacenter Edition	–	IIS 6.0 included in the OS. 1. IIS 6.0 installed by default 2, 3, 4. IIS 6.0 optionally installed (in the CD)	.Net Framework 1.1 installed as part of the OS.

Operating System	Service Pack	IIS ¹	MDAC and .Net Framework
Windows XP Professional	1.0	IIS installed as an option. Available in the Windows XP CD. Install IIS before installing .Net framework.	MDAC and .Net Framework available for download from Microsoft. MDAC 2.7 and .Net Framework Version 1.0.3705 included as part of PSV install.
Windows 2000 Professional	2.0	Internet Service Manager included in the OS. Available in the Windows 2000 CD.	
Windows 2000 Server / Advanced Server / Datacenter Server	2.0	Install IIS before installing .Net framework.	
Windows XP Home	1.0	Works only with PSV Embedded Web Server, available in the PSV Install Package.	

1. An Embedded Web Server option is provided which does not require IIS.

Supported Browsers

The browsers supported are:

- > Internet Explorer (IE) 4.01 and above.
- > Netscape Navigator 4.0 and above.
- > Opera 5.12 and above.

The PrintSuperVision application can be accessed from any Windows, Macintosh, Unix, and Linux desktop that support any of the above-mentioned browsers.

While all the above browsers are supported, PrintSuperVision works best when used with Internet Explorer. When using the Netscape browser, do not select the option [Images off]. The hyperlinks may not work properly. Some versions of Netscape browser do not display the frames properly, and the [Back] button may not work correctly.

Supported Printers

PrintSuperVision provides general management information for Oki and non-Oki printers connected to the network. For Oki printers, additional details, reports and added features are available.

While the printer properties are displayed in PrintSuperVision, only a few of the printer settings can be set. For setting any other printer settings, a hyperlink to the printer's web page is provided in PrintSuperVision.

Installation

To install the Print SuperVision utility

WindowsXP/2000/NT4.0 requires administrator privileges.

1. Insert the CD-ROM into the CD-ROM drive. The Setup Utility starts automatically. If it does not start, double-click *Autorun.exe* on the CD-ROM.
2. Select [Optional Utilities].
3. Select [Install PrintSuperVision].
4. Follow the on-screen instructions. In the [Edit Data] screen, you can specify a port number for PrintSuperVision (default 80).
5. When installation ends, the [Setup complete] screen is displayed. Click [Finish].
6. Now you should select [Start]-[Programs]-[PrintSuperVision]-[PrintSuperVision] or double-click the [PrintSuperVision] icon on the desktop for the PrintSuperVision server.
7. For PrintSuperVision client, access [*http://[the server IP address or host name]/PrintSuperVision*] from the Web browser. If you change the port number you should add *[:[port number]]* such as [*http://192.168.20.127/PrintSuperVision:8080*].
8. PrintSuperVision has an on-line help facility.

Uninstallation

To uninstall PrintSuperVision, either select [Start]-[Programs]-[PrintSuperVision]-[Uninstall PrintSuperVision], or from [Control Panel], select [Add/Remove Programs], select [PrintSuperVision] from the index window and click [Add/Remove]. When the uninstallation is completed, close [Add/Remove Programs].

In some cases, an empty [*Okidata/PrintSuperVision/*] directory may be left behind. Delete the directory manually.

Printing utility

Oki LPR

The Oki LPR Utility is a utility that allows printing data to printers connected to the network via TCP/IP. This utility is for use with Windows XP, Windows 2000, Windows Server 2003, Windows Me, Windows 98, Windows 95 and Windows NT4.0.

The utility is for those Oki printers which support TCP/IP and redirects printing data to the lpr port of the specified IP address.

To install the Oki LPR utility

The Oki LPR utility requires that the TCP/IP protocol should be installed into your Windows system. To install the TCP/IP protocol into your Windows system consult your Windows manual.

Windows XP/2000/NT4.0 requires administrator privileges.

1. Set up the printer driver by designating the output destination to [Local Printer (LPT1:)]. For information on setting up your printer driver, see the printer user manual.
2. Insert the CD-ROM into the CD-ROM drive. The Setup Utility starts automatically. If it does not start, double-click *autorun.exe* on the CD-ROM.
3. Select [Option Utilities].
4. Select [Install Direct Network Printing Utility].
5. Follow the on-screen instructions.
6. Click [Next] when the [Welcome] screen is displayed.
7. Verify [Destination Folder] and [Spool Folder] and click [Next].
8. Check [Register in Startup] if you want automatic startup as Windows boots up. Check [Launch as minimized] if you want to startup in the Icon state and click [Next].
9. Verify the program folder name and click [Next]. The installation starts.
10. When the installation ends, the [Setup complete] screen is displayed. Check [Yes, I want to launch Oki LPR Utility now] and click [Finish]. Check [Yes, I want to view the ReadMe File] if you want to read [Readme]. The OKILPR utility starts.
11. You may be asked whether it is OK to change write permissions for the spool directory. Click [Yes] to allow the utility to be correctly installed.

12. Select [Add Printer] on the [Remote Print] menu.
13. Click [Discover...] to search for the IP address of a suitable printer on your network. Highlight the printer you will use and click [OK]. If your printer is not discovered, click [Cancel] and you can type the IP address directly at [IP Address:].
14. Enter an IP address at [IP Address] and click [OK]. A printer is added to the main window.

Refer to the On-line Help for information on how to use the utility.

Uninstallation

1. Stop the Oki LPR Utility.
2. Select [Start]-[Program]-[Okidata]-[Oki LPR Utility]-[Uninstall Oki LPR Utility]. You may find this in [Start]->[All Programs] under Windows XP.
3. Click [Yes] when the [Confirm File Deletion] dialogue is displayed. Deletion of the Oki LPR utility starts.
4. When the deletion has finished, the [Uninstall Complete] screen is displayed. Click [OK].

If a file that has been added after installation exists in the folder to install the Oki LPR utility or the folder to spool, you cannot delete the folder. Delete any unwanted files before running [Uninstall Oki LPR Utility].

MICROSOFT WINDOWS

Overview

This section provides guidelines on how to print over the network from various Microsoft Windows platforms. There are numerous ways of printing from Windows and the exact set-up will vary depending upon your environment. There are also numerous versions of Windows, which can be configured as either a client, server or both.

Although there are many variants of Windows, the principles of network printing are the same. Microsoft provides on-line help with all of their operating systems and this is a good reference point for the exact details of each configuration option within Windows.

The network printer supports the following protocols that can be used in conjunction with the Windows operating system:

- > TCP/IP
- > IPX (Novell NetWare)
- > NetBEUI

Installation of TCP/IP Protocol

There are a number of options available when printing using TCP/IP for Windows. The following table lists the options:

Windows Version	Method
Win 95/98/Me	Oki LPR Utility
NT 4.0	Oki LPR Utility Microsoft LPR ¹
Windows 2000/ Windows XP	Oki LPR Utility Microsoft LPR ¹ Port 9100 ¹ IPP ¹

¹These functions are built into Windows and are displayed as options when using the Add Printer Wizard.

Although there are some differences in configuration options between the various Windows platforms, the procedure for printing using TCP/IP is the same.

1. Ensure that the TCP/IP protocol has been installed in Windows. This can be confirmed by checking the network settings from within the Control Panel. If TCP/IP has not been installed refer to the section below Installation of TCP/IP protocol.
2. If not already configured, a suitable IP address, Subnet Mask and Gateway address should be configured. Please refer to the on-line help if necessary. It is vital that the IP address entered is unique and valid. Entering an incorrect IP address may cause severe network problems. Please check the address with the network administrator.
3. If your network environment uses domain names, DNS should be enabled and configured on your system. However, this step is not essential to enable network printing.
4. Restart the operating system.

Windows 95/98/Me

1. Click the [Start] button, select [Settings] and then click on [Control Panel].

2. In the [Control Panel] double-click on the [Network] icon.
3. In the [Network] dialogue box click the [Configuration Panel].
4. If the [Client for Microsoft Networks] is not listed, click the [Add] button.
5. In the [Select Network Component Type] dialogue box, select [Protocol] then click the [Add] button.
6. In the [Select Network Protocol] dialogue box, select [Microsoft] from the list of manufacturers, then select [TCP/IP] from the list of network protocols, then click [OK].
7. The Windows installation CD-ROM may be required. Follow the remaining dialogue box prompts.

Windows NT 4.0

1. Click the [Start] button, select [Settings] and then click on [Control Panel].
2. Double-click the [Network] icon.
3. In the Network dialogue box, click the [Protocols] tab.
4. If the [TCP/IP Protocol] is not listed, click the [Add] button.
5. In the [Select Network Protocol] dialogue box, select [TCP/IP Protocol] and click [OK].
6. The Windows NT installation CD-ROM may be required. Follow the remaining dialogue box prompts.

Windows 2000

1. Click the [Start] button, select [Settings] and then click on [Network and Dial-up Connections].
1. Double-click the [Local Area Connection] icon. In the [Local Area Connection Status] dialogue box, click the [Properties] button.

1. If the TCP/IP protocol is not listed, in the [Local Area Connection Properties] dialogue box, click the [Install] button.
1. In the [Select Network Component Type] dialogue box, select [Protocol] and click the [Add] button.
2. In the [Select Network Protocol] dialogue box, select [TCP/IP Protocol] and click the [OK] button.
3. Click the [Close] button in the [Local Area Connection Properties] dialogue box.
4. Click the [Close] button in the [Local Area Connection Status] dialogue box.

Windows XP

1. Click the [Start] button and select [Control Panel].
2. Select [Network and Internet Connection] and [Network Connection].
3. Double-click [Local Area Connection] and click [Properties] in the [Local Area Connection Status] dialogue box.
4. If the [Internet Protocol (TCP/IP)] is not listed, click [Install..] button.
5. In the [Select Network Component Type] dialogue box, select [Protocol] then click the [Add] button.
6. In the [Select Network Protocol] dialogue box, select [Internet Protocol (TCP/IP)] then click [OK].
7. The Windows XP installation CD-ROM may be required. Follow the remaining dialogue box prompts.

Once the protocol has been installed and configured in Windows, the next step is to configure the TCP/IP parameters in the network printer.

Network printer IP address configuration

Use the Standard Set-up Utility to configure the IP Address, Subnet Mask and Gateway.

Connect the printer to the network and turn on.

Place the CD-ROM in the CD-ROM drive. The set-up utility starts automatically. If the set-up utility does not start, double-click on *autorun.exe* in the Windows folder of the CD-ROM.

Some steps may not display depending on the network protocols installed.

1. Select [Optional Utilities].
2. Select [Install Network Set-up Utility].
3. Select the appropriate language.
4. Click [Next] at Welcome screen.
5. If you agree to the User Licence Agreement, click [Next].
6. Select the appropriate network card, using the Ethernet address to identify it, and click [Next].
7. The Ethernet address of the printer can be found on the self-diagnostic printout, which can be printed by pressing the push-button on the network card panel for three seconds and then releasing it.
8. Do you use the TCP/IP protocol?
9. When using *lpr* in UNIX and other TCP/IP environments, please select [Yes]. To use in a TCP/IP environment, an IP address should be assigned to the Ethernet board.

If [Yes] has been selected and TCP/IP is the only working protocol and the IP address has not already been assigned, you can either obtain an IP address automatically or assign an IP address.

When [Obtain an IP address automatically] is selected, the device IP address will be automatically assigned by the DHCP server. In an environment without a DHCP server, assign the IP address manually.

If you are assigning an IP address, you need to enter:

- > An IP address
- > Submit mask
- > Gateway address.

Do you use the NetWare protocol?

Consult your network manager to ensure that the NetWare file server is properly installed and working on the network. Make sure that NetWare Client32 or IntranetWare Client is installed on your computer.

10. Click [Next].

11. On selecting [Yes] you will be asked if [You set-up the queue from the Wizard]?

Do you use the NetBEUI protocol?

12. Using NetBEUI makes it easy to manage your Oki product and print within the network environment of Windows.

13. Confirm your configuration. If everything is correct, select [Execute] to apply the configuration.

14. Set-up has now been completed. Select [Finish].

Now that both Windows and the printer have been configured to use TCP/IP, the next step is to configure Windows to print to the network printer.

Configuring Windows for Network Printing

Windows 95/98/Me

When printing using TCP/IP the *OkiLPR* utility is the only option to use. The following procedure should be used.

When installing the driver, ensure it is installed as a local printer and not a network printer. Ensure the appropriate printer driver has been installed in Windows.

Install the *OkiLPR* utility as described on page 31 of this manual and add the printer installed earlier.

Windows NT 4.0

With Windows NT 4.0, you have two options for printing using TCP/IP. They are:

> OkiLPR

> Microsoft LPR

In order to use Microsoft LPR, it must first be installed into your operating system.

NT 4.0 requires administrator privileges.

OkilPR

Please follow the procedure described in the Windows 95/98/Me section on page 38.

Microsoft LPR

To install this port, the following needs to be carried out.

1. Select [Start], [Settings], [Control Panel] and then select [Printers].
2. Select [Add Printer] Wizard.
3. Select [My Computer] and then [Next].
4. Select [Add Port].
5. Select [LPR Port] and then [OK].
6. In [Name or address of server providing lpd] type the host name or IP address of the host for the printer you are adding.
7. In [Name of printer or print queue on that server] type the logical printer name "lp" and then click [OK].
8. Follow the instructions on the screen to finish installing the LPR-compatible printer.

If the LPR port is not available, install the Microsoft TCP/IP Printing Service.

Insert the printer driver for Windows NT4.0.

1. Select [Start], [Settings], [Control Panel] and then double-click the [Network] icon.
2. In the Network dialogue box, click the [Services] tab.
3. If the [Microsoft TCP/IP Printing] is not listed, click the [Add] button.
4. In the [Select Network Service] dialogue box, select [Microsoft TCP/IP Printing] and click [OK].

5. The Windows NT installation CD-ROM may be required. Follow the remaining dialogue box prompts.

Windows 2000

Windows 2000 requires administrator privileges.

With Windows 2000, there are four options for printing using TCP/IP.

- > OkiLPR
- > Microsoft LPR
- > Port 9100
- > IPP

In order to use Microsoft LPR, it must first be installed on your system.

OKIL PR

Please follow the procedure described in the Windows 95/98/Me section on page 38.

Microsoft LPR

To install this port, the following needs to be carried out:

1. Select [Start], [Settings], [Control Panel and Printers].
2. Open the [Printers] folder.
3. Double-click [Add Printer] and then select [Next].
4. Select [Local Printer], clear the [Automatically detect my printer] check box, and then select [Next].
5. Select [Create a new port] and then [LPR Port].
6. Select [Next] and then provide the following information:

In [Name or address of server providing LPD] enter the host name or Internet Protocol (IP) address of the host for the printer you are adding.

In [Name of printer or print queue on that server] type "lp".

Follow the instructions on the screen to finish installing the TCP/IP printer.

Port 9100

1. Select [Start], [Settings], [Control Panel].
2. Open the [Printers] folder.
3. Double-click [Add Printer] and then select [Next].
4. Select [Local Printer], clear the [Automatically detect my printer] check box and then click [Next].
5. Select [Create a New Port] and select [Standard TCP/IP Port].
6. Select [Next].
7. The [Welcome to the Add Standard TCP/IP Printer Port Wizard] will appear.
8. Select [Next] and provide the following information. Enter [Printer name] or IP address, for example: *192.168.1.31*. If the above IP address is entered, the Port Name will default to *IP_192.168.1.31*.
9. Select [Next]. Additional port information will be required.
10. Under [Device Type], select [Custom] then [Settings].
11. Ensure [Protocol] is set to [Raw].
12. Ensure [Port Number] is 9100 and [SNMP Status Enabled] is deselected.
13. Select [OK].
14. Select [Follow the instructions on the screen to finish installing the printer.]

IPP

1. Select [Start], [Settings], [Control Panel and Printers].
2. Open the [Printers Folder].

3. Double-click [Add Printer] and then select [Next].
4. Select [Network Printer].
5. Select [Next].
6. Type printer URL in text box labelled [Connect to a printer in the Internet or your Intranet], e.g. *http://192.168.1.31/ipp/ip*].
7. Select [Next].
8. Install printer driver.

Windows XP

Windows XP requires administrator privileges.

With Windows XP, there are four options for printing using TCP/IP.

- > OkiLPR
- > Microsoft LPR
- > Port 9100
- > IPP

In order to use Microsoft LPR, it must first be installed on your system.

OKI LPR

Please follow the procedure described in the Windows 95/98/Me section on page 38.

Microsoft LPR

To install this port, the following needs to be carried out:

1. Select [Start], [Settings], [Control Panel]. and [Printers and Other Hardware].
2. Select [Printers and Faxes].
3. Click [Add Printer] and then select [Next].

4. Select [Local printer attached to this computer], clear the [Automatically detect and install my Plug and Play printer] check box, and then select [Next].
5. Select [Create a New Port] and [Type Standard TCP/IP Port].
6. Select [Next].
7. The [Welcome to the Add Standard TCP/IP Printer Port Wizard] will appear.
8. Select [Next] and provide the following information. Enter [Printer name or IP address], for example: *192.168.1.31*. If the above IP address is entered, the Port Name will default to *IP_192.168.1.31*.
9. Select [Next]. [Additional Port Information Required] is displayed.
10. Under [Device Type], select [Custom] then [Settings].
11. Ensure [Protocol] is set to [LPR].
12. Ensure [Queue Name] is “lp” and [SNMP Status Enabled] is deselected.
13. Select [OK].
14. Follow the instructions on the screen to finish installing the printer.

Port 9100

1. Select [Start], [Settings], [Control Panel]. and [Printers and Other Hardware].
2. Select [Printers and Faxes].
3. Click [Add Printer] and then select [Next].

4. Select [Local printer attached to this computer], clear the [Automatically detect and install my Plug and Play printer] check box, and then select [Next].
5. Select [Create a New Port] and select [Type Standard TCP/IP Port].
6. Select [Next].
7. The [Welcome to the Add Standard TCP/IP Printer Port Wizard] will appear.
8. Select [Next] and provide the following information. Enter [Printer name or IP address], for example: *192.168.1.31*. If the above IP address is entered, the Port Name will default to *IP_192.168.1.31*.
9. Select [Next]. [Additional Port Information Required] is displayed.
10. Under [Device Type], select [Custom] then [Settings].
11. Ensure [Protocol] is set to [Raw].
12. Ensure [Port Number] is 9100 and [SNMP Status Enabled] is deselected.
13. Select [OK].
14. Follow the instructions on the screen to finish installing the printer.

IPP

1. Select [Start], [Settings], [Control Panel]. and [Printers and Other Hardware].
2. Select [Printers and Faxes].
3. Click [Add Printer] and then select [Next].

4. Select [A network printer, or a printer attached to another computer].
5. Select [Next].
6. Select [Connect to a printer on the Internet or on a home or office network] and type printer URL in text box, e.g. *http://192.168.1.31/ipp/ip*.
7. Select [Next].
8. Install printer driver.

Novell Netware IPX

IPX is used with Novell NetWare. The OkiLAN 7120e supports Novell 3, 4, 5 and 6, and allows print jobs to be directed to the appropriate Novell print queue. Please refer to the relevant section of this manual for additional information.

NetBEUI Protocol

NetBEUI is a protocol that was designed for use on small workgroups or LANs. Within Windows, NetBEUI is used for file and printer sharing between computers. It provides a simple method of printing but the protocol does have limitations and is not as robust as TCP/IP or IPX. Typically it is employed in small or home networks.

Network Printer Settings

There are three configurable items under NetBEUI within the printer. These can be configured using the standard set-up utility described earlier.

Computer Name:	Name assigned to the printer
Workgroup:	PrintServer ¹
Comment:	User definable description

¹Although the workgroup name can be changed, it is recommended that it remains as PrintServer.

Although there are some differences in configuration options between the various Windows platforms, the procedure for printing using NetBEUI is the same.

Please ensure the NetBEUI protocol has been installed in Windows. This can be confirmed by checking the network settings. If NetBEUI has not been installed please refer to the section below.

The relevant Windows installation CD-ROM may be required and you should follow the on-screen dialogue box prompts.

Windows 95/98/Me

1. Select [Start], [Settings], and [Control Panel].
2. In the Control Panel double-click on the [Network icon].
3. In the Network dialogue box select [Configuration Panel].
4. If [Client for Microsoft Networks] is not listed, click the [Add] button.
5. In the [Select Network Component Type] dialogue box, select [Protocol] then the [Add] button.
6. In the [Select Network Protocol] dialogue box, select [Microsoft] from the list of manufacturers, then select [NetBEUI] from the list of [Network Protocols] and then click [OK].
7. The Windows installation CD-ROM may be required. Follow the remaining dialogue box prompts.

Windows NT 4.0

1. Click the [Start] button, select [Settings] and then [Control Panel].
1. Double-click the [Network] icon.
2. In the [Network] dialogue box, click the [Protocols] tab.
3. If the [NetBEUI Protocol] is not listed, click the [Add] button.
4. In the [Select Network Protocol] dialogue box, select [NetBEUI Protocol] and click [OK].

Windows 2000

1. Click the [Start] button, select [Settings] and then click on [Network and Dial-up Connections].
2. Double-click the [Local Area Connection] icon. In the [Local Area Connection Status] dialogue box, click the [Properties] button.
3. In the [Local Area Connection Properties] dialogue box, if the [NetBEUI Protocol] is not listed, click the [Install] button.
4. In the [Select Network Component Type] dialogue box, select [Protocol] and click the [Add...] button.
5. In the [Select Network Protocol] dialogue box, select [NetBEUI Protocol] and click the [OK] button.
6. Click the [Close] button in the [Local Area Connection Properties] dialogue box.
7. Click the [Close] button in the [Local Area Connection Status] dialogue box.

Windows XP

Although you can install the NetBEUI protocol into Windows XP, it is not supported. You should be able to use NetBEUI on LAN connections although you will not be able to use this on a Remote Access Service Connections.

1. In the [Start] menu, select [Settings] then [Control Panel].
2. Double-click on [Network Connections].
3. Right-click the adapter you wish to add NetBEUI to and then click [Properties].
4. On the [General] tab, select [Install].
5. Select [Protocol] and then [Add].
6. Select [Have Disk] and insert your Windows XP CD-ROM, open the *Valueadd\msft\net\netbeui* folder, click the

Netnbf.inf file and then click [Open]. Now the printer has been configured and NetBEUI has been installed, you can configure Windows to print over the network.

Printer driver configuration

In the following example, the printer has been configured as follows:

Computer Name:	OL07DB85
Workgroup:	PrintServer
Comment:	EthernetBoard OkiLAN 7120e

1. Set up the printer driver as the default local printer.
 2. In the [Start] menu, select [Settings] then [Printers].
 3. Select the relevant printer driver, then [Properties].
 4. Click on the [Details] tab in the printer driver.
 5. Select [Add Port]. Select [Network] and click [Browse].
 6. Double-click [Entire Network], [PrintServer] and [OL07DB85].
 7. Select [Prn1] and click OK.
 8. Check that [Network] is selected and click [OK].
 9. Select [Apply] and [OK] to close [Properties].
- > Printing can be carried out using the application software.
 - > The Master Browser function manages machine information from the same Workgroup, and replies to summary requests from other workgroups.
 - > The Master Browser function operates only if the Workgroup name is PrintServer.
 - > The Master Browser function can only manage this network card. If the PrintServer name is put into another Workgroup, the network card will not be able to find it on the network.
 - > A maximum of eight Ethernets can be managed by the Master Browser function.

- > Printing cannot be carried out and an error message appears when jobs from other users (including other protocols) are being printed.

NOVELL NETWARE

Overview

The OkiLAN 7120e supports the Novell NetWare environment.

It is necessary to have NetWare Administrator or Supervisor rights to change the configuration. This guide is for NetWare administrators. It should be read in conjunction with the relevant Novell NetWare manual. The latest Novell service packs and Novell client versions should be installed.

Supported Versions and Modes

NetWare 3.11 +	Bindery
NetWare 4.1+	Bindery and NDS
NetWare 5+	Bindery, NDS and NDPS
NetWare 6	Bindery, NDS, NDPS and iPrint

In NDS, the printer can be configured to work in either print server mode or remote printer mode.

Remote Printer Mode

Remote Printer Mode requires a connection to be made to a workstation running Pserver. Print jobs are received from the file server via the NetWare print server. The network interface card emulates the workstation on which the NetWare Rprinter operates. Remote Printer Mode adds additional traffic to the network and is slower than Print Server Mode but does not require any additional licences.

Print Server Mode (Recommended)

In Print Server Mode, the file server is logged in and the printer queue is repeatedly polled to determine whether a print job exists. The NetWare print server or workstation where Pserver runs is emulated. This enables high speed printing without applying a load to the network. Print Server Mode requires a single user NetWare licence.

Printing the Network Interface Card Configuration Sheet

The printer's configuration page reports information required for NetWare configuration. To print this page, with the printer is switched on, depress the NIC's push-button for three seconds and then release.

The information you require is the printer's Ethernet address. The first six characters of the Ethernet address are the same for all OkiLAN 7120e network cards. The last six characters are unique to each card. This is all the information that is required to setup the OkiLAN7120e for NetWare.

Setup Utilities

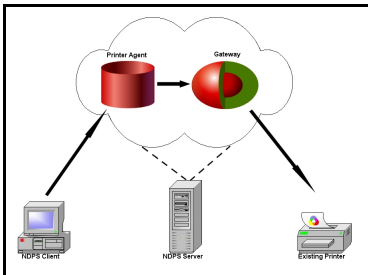
Use *NWAdmin32* or the *Pconsole* utility to create and setup NetWare printer objects. Please refer to Novell documentation for instructions on how to achieve this.

Use the Oki Network Card Setup Utility (*AdminManager*) or other printer manager software, (Web browser, *JetAdmin*, etc.) to configure the network interface card. For instructions please refer to the Configuration Utility section and online help. Below is the NetWare configuration page from AdminManager.

OKI NDPS Gateway

OKI provide a gateway for NDPS. Gateways allow NDPS clients to send jobs to printers that are not NDPS-aware (that is, printers that are not equipped with embedded NDPS Printer Agents). You select and configure a printer gateway when you create a new Printer Agent.

Gateways translate NDPS queries or commands to printer-specific language that the physical printer can use. This is possible because gateways are configured to know the specific type (make and model) of printer being used. The following diagram illustrates a typical gateway configuration.

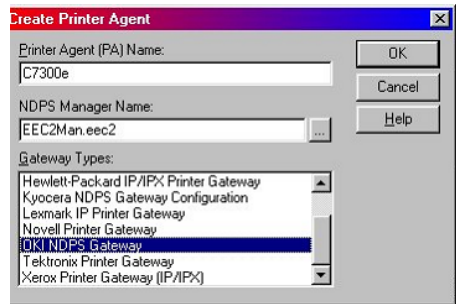


The Oki NDPS Gateway can be installed from the OkiLAN 7120e CD under Software Utilities. Please follow on-screen instructions. You will require a drive mapping to the NetWare server that you are installing to.

- > During installation, all files are copied to the SYS:/SYSTEM and SYS:/PUBLIC/WIN32 directories on the NetWare server



1. To set up the OkiLAN 7120e to work with the OKI NDPS Gateway, you should create a NDPS printer object as normal with the *nwadmin32* utility. When you get to the [Create Printer Agent] screen, under [Gateway Types] there should now be an option for OKI NDPS Gateway.



2. Select this and click [OK] to continue. Click [Next] on the Gateway Configuration Welcome screen, then select Printer Interface Type, either TCP/IP LPR or NetWare IPX and click [Next] to continue. (TCP/IP configuration illustrated.)

You will then be requested to enter either the TCP/IP or IPX address, depending on the type of interface selected in the previous screen. If you do not know the address, you are given the option to search on the network.

Once you have correctly input your network address you will be prompted with a [Results] and then a [Summary] screen.

3. Press the [Finish] button on the [Summary] screen so the NDPS Printer object has now been created and is configured

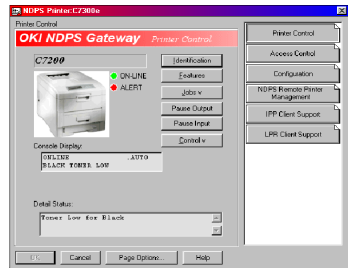
to use the Oki NDPS Gateway. Illustrated here is the Printer Control screen for the completed printer.

iPrint

iPrint is included in NetWare 6 and is Novell's next generation of printing software. It is Novell's implementation of IPP (Internet Printing Protocol). iPrint allows users to install, manage and print to printers through Web browsers regardless of where the printer is physically located or whether they know the printer's network address. iPrint runs on top of Novell Distributed Print Services (NDPS) and provides the following functionality:

- > Global access to printers.
- > Customizable view of any print environment.
- > Flexible print deployment configurations.
- > Secure printing.

The OkiLAN 7120e does not require any custom configuration for iPrint. To enable and configure the iPrint service on your network, please refer to your Novell NetWare 6 documentation.



UNIX

Overview

The OkiLAN 7120e supports many protocols such as LPD, FTP, TELNET, SNMP and IPP, and works within the UNIX environment.

To use the network card within the UNIX environment, the following steps are required:

Configuration

Network Interface card setting

The first step in installing the network card under UNIX is to set up the IP address, Subnet Mask and Gateway. This section explains one way to set them up from a UNIX workstation.

- > The network addresses used in this manual are shown as examples only. Network addresses used in your installation must be generated for your own network.
- > Login as [root] to change the configuration of the OkiLAN 7120e.
- > If an incorrect IP address, Subnet Mask or Gateway is entered, the network may go down or other damage may occur. Check the address with your network manager.

The following explanation uses Sun Solaris 2.8 (Solaris 8) as an example. The actual commands may differ between versions of UNIX, so refer to the workstation manuals for more information.

1. Log in as [root] to the workstation
 - > If you do not have superuser rights, the network manager should conduct the configuration.
2. If the OkiLAN 7120e does not have an IP address already assigned, use the **arp** command to set a temporary IP address.

Example: for IP address 192.68.20.127 and network card address 00:80:87:01:00:D2

```
# arp -s 192.168.20.127 00:80:87:01:00:D2 temp
```

The Ethernet (MAC) address 00:80:87:01:00:D2 in the above example can be determined from the network card self-diagnostic test.

3. Use the **ping** command to confirm the connection with the card.

Example: for IP address 192.168.20.127

```
# ping 192.168.20.127
```

If there is no reply, there is a problem with the configuration of the IP address (the IP address has already been set manually or dynamically), or with the network. Reset the network interface card settings to default and try to set a temporary IP address.

If you still have the problem after resetting the card, consult your network manager.

4. Login to the network interface card using TELNET.

Example: Logging in to IP address 192.168.20.127

```
# telnet 192.168.20.127
Trying 192.168.20.127
Connected to 192.168.20.127
Escape character is '^]'.
EthernetBoard OkiLAN 7120e Ver 01.09 TELNET server
login: root
'root' user needs password to login.
password: <CR>
User 'root' logged in.
No. Message Value (level .1)
1 : Setup TCP/IP
2 : Setup SNMP
3 : Setup NetWare
4 : Setup NetBEUI
5 : Setup printer port
6 : Display status
7 : Setup printer trap
8 : Setup SMTP (Email)
9 : Maintenance
10 : IP Filtering Setup
97 : Reset to factory set
98 : Quit setup
99 : Exit setup
Please select (1- 99)?
```

5. Type **1** and press the [Enter] key. Perform the following settings:

```
Please select (1- 99)? 1
No. Message Value
1 : TCP/ IP protocol: ENABLE
2 : IP address: 192.168.20.127
```

```
3 : Subnet Mask: 255.255.255.0
4 : Gateway address: 192.168.20.1
5 : RARP protocol: DISABLE
6 : DHCP/ BOOTP protocol: DISABLE
7 : DNS Server (Pri.): 192.168.1.2
8 : DNS Server (Sec.): 192.168.1.1
9 : root password: "*****"
10 : Domain: ""
99 : Back to prior menu
Please select (1- 99)?
```

6. Logout from the network interface card. Turn the printer off and on again to validate the settings.

Operating system configuration

This section explains how to configure a printer for major UNIX operating systems.

Sun OS 4.x.x (BSD) configuration

The following explanation uses Sun OS 4.1.3 and an ML8810 printer as examples. The absolute path of commands and the configuration method may differ between OS versions, so refer to the workstation manuals for more information.

If an incorrect IP Address, Subnet Mask or Gateway is entered, the network may go down or other damage may occur. Check the address with the network manager and confirm that the IP address of the printer has been set.

1. Login as [root] to the workstation.

If you do not have Superuser rights, the network manager should conduct the configuration.

2. Register the IP address of the network card and the host name in the */etc/hosts* file.

Example: for IP address 192.168.20.127 and host name ML8810

```
192.168.20.127 ML8810
```

3. Use the **ping** command to confirm connection with the network card.

Example: for host name ML8810

```
# ping ML8810
```

If there is no reply, then there is a problem with the configuration of the IP address (the IP address has already been set manually or dynamically) or with the network. Reset the network interface card settings to their defaults and then try to set a temporary IP address. If you still have the problem after resetting the card, consult your network manager.

4. Register the printer in the */etc/printcap* file.

Example: for host name ML8810, to create a queue called ML8810_lp

```
ML8810_lp: \  
:lp=:rm=ML8810:rp=lp:\  
:sd=/usr/spool/ML8810_lp:\  

```

```
:lf=/usr/spool/ML8810_lp/ML8810_lp_errs:
```

ML8810_lp The name of the printer queue

lp: The name of the device used to connect to the printer.
Does not need to be specified for a remote machine.

rm: The name of the host of the remote printer. This should be
the same as the name added to the */etc/hosts* file.

rp: The name of the printer on the remote printer. It should
be lp.

sd: The spool directory. Give the absolute path.

lf: The error log file. Give the absolute path.

5. Create the spool directory and error log file.

*Example: for spool Directory ML8810_lp and Error Log file
ML8810_lp_errs*

```
# mkdir /usr/spool/ML8810_lp
# touch /usr/spool/ML8810_lp/ML8810_lp_errs
# chown -R daemon /usr/spool/ML8810_lp
# chgrp -R # daemon /usr/spool/ML8810_lp
```

6. Check that **lpd** (printer daemon) is activated.

```
# ps aux | grep lpd
```

7. If **lpd** is not running, you can start it by logging in as
superuser and executing

```
# /usr/lib/lpd &
```

Sun Solaris 2.8 configuration

Admintool is normally used to register remote printers on Open Windows. However, it cannot be used here, as the data recipient and queue have the same name. The procedure below must be used for registering a remote printer.

If Sun Solaris is connected to the remote printer for a long period according to the system specifications, errors and forced disconnection may occur. Therefore, if paper tearing, off-line and other errors result in waiting time, printing may have to be aborted.

if an incorrect IP address is entered, the network may go down or other damage may occur. Configure after consulting the network manager.

The following explanation uses Sun Solaris 2.8 (better known as Solaris 8) and an ML8810 printer as examples. The absolute path and method of configuring commands may differ between OS versions. Refer to the workstation manuals for more details.

The queue created in the following example sends the print job directly to the printer. To print data that the printer cannot process (such as PostScript data), refer to the workstation manual for details.

1. Confirm that the IP address of the printer has been set.
2. Login as [root] to the workstation. If you do not have superuser rights, the network manager should conduct the configuration.
3. Register the IP address of the network card and the host name in */etc/hosts* file.

Example: for IP Address 192.168.20.127 and host name ML8810

```
192.168.20.127 ML8810
```

4. Use the **ping** command to confirm connection with the network card.

Example: for host name ML8810

```
# ping ML8810
```

If there is no reply, there is a problem with the configuration of the IP address (the IP address has already been set manually or dynamically), or with the network.

Reset the network interface card settings to default and try to set a temporary IP address. If you still have the problem after resetting the network interface card, consult the network manager.

5. Register the network card as a remote printer server.

Example: for host name ML8810

- a. Stop the print scheduler.

```
# usr/sbin/lpshut
```

- b. Create the printer queue.

```
# /usr/sbin/lpadmin -p ML8810_lp -v /dev/null \  
-m netstandard -o dest=ML8810:lp -o protocol=bsd
```

- c. Start the print scheduler.

```
# /usr/sbin/lpsched
```

- d. Activate the print queue.

```
# /usr/sbin/accept ML8810_lp
```

- e. Enable the print queue

```
# /bin/enable ML8810_lp
```

HP-UX 10.x configuration

If an incorrect IP Address, Subnet Mask or Gateway is entered, the network may go down or other damage may occur. Check the address with the network manager.

The following example uses HP-UX10.20 and a ML8810 printer as examples. The absolute path and method of configuring commands may differ in other versions of the OS. Refer to the workstation manual for more details.

1. Confirm that the IP address of the printer has been set. See network interface card IP address configuration for more information.
2. Login as [root] to the workstation. If you do not have superuser rights, the network manager should conduct the configuration.
3. Register the IP Address of the network card and the host name in the */etc/hosts* file.

Example: for IP Address 192.168.20.127 and host name ML8810

```
192.168.20.127 ML8810
```

4. Use the **ping** command to confirm connection with the network card.

Example: for host name ML8810

```
# ping ML8810
```

If there is no reply, there is a problem with the configuration of the IP address (the IP address has already been set manually or dynamically), or with the network. Reset the network interface card settings to default and try to set a temporary IP address. If you still have the problem after resetting the network interface card, consult the network manager.

5. If remote spooling is not already enabled on the HP-UX machine, carry out the following configuration.

- a. Stop the printer spooler.

```
# /usr/sbin/lpshut
```

- b. Add the following line to the */etc/inetd.conf* file and register the remote spooler.

```
printer stream tcp nowait root /usr/sbin/rldpameon -I
```

c. Restart *inetd*

```
# /etc/inetd -c
```

6. Register the remote printer

Example: setting up a queue called ML8810_lp to print to host ML8810

d. Register the remote printer.

```
# /usr/sbin/lpadmin -pML8810_lp -v /dev/null -mrmodel \  
-ormML8810 -orplp -ocmrcmodel  
-osmrsmodel -ob3
```

e. Activate the print queue.

```
# /usr/sbin/accept ML8810_lp
```

f. Enable the print queue.

```
# /bin/enable ML8810_lp
```

g. Enable the printer spooler.

```
# /usr/sbin/lpsched
```

AIX 4.1.5 configuration

The following explanation uses AIX4.1.5 and a ML8810 printer as examples. The absolute path of commands and the method of configuring may differ with the OS version. Refer to the workstation's manual. If an incorrect IP address is entered, the network may go down or other damage may occur. Configure after consulting the network manager.

1. Log in as [root]. If you do not have superuser rights, the network manager should conduct the configuration.
2. Register the IP address and the host name in the */etc/hosts* file.

Example: for IP Address 192.168.29.127 and host name ML8810

```
192.168.20.127 ML8810
```

3. Use the **ping** command to confirm connection with the network card.

Example: for host name ML8810

```
# ping ML8810
```

If there is no reply, there is a problem with the configuration of the IP address (the IP address has already been set manually or dynamically), or with the network. Reset the network interface card settings to default and try to set a temporary IP address. If you still have the problem after resetting, consult the network manager.

4. Register the host that was previously registered as the print server.

Example: for the ML8810 registered as the print server

- a. Add the print server.

```
# ruser -a -p ML8810
```

- b. Activate the remote printer daemon.

```
# startsrc -s lpd  
# mkitab 'lpd:2:once:startsrc -s lpd'
```

5. Add the print queue using the *smit* command.

- a. Activate the *smit* command and convert to the item [Add print queue].

```
# smit mkrque
```

- b. Select [remote] (the printer connected to the remote host) from [Type of connection].
- c. Select [Standard procedure] from Type of remote print.
- d. Carry out the following settings in [Add a standard remote print queue]. If the configuration differs from below, configure according to environment.

Example: Use port lp with print queue ML8810_lp and print server ML8810

```
Queue to be added"ML8810_lp"  
Host name of the remote server"ML8810"  
Queue name of the remote server"lp"  
Type of print spooler  
of the remote server"BSD"  
Description of printer name  
of the remote server"Optional comment"
```

LPD Printing

Line Printer Daemon (LPD) is the most common protocol for printing with TCP/IP to a network printer. Refer to the workstation's manual for details of *lpr* and *lp* commands. The following explanation in this section uses the printing of print file *test.prn* with printer name *ML8810_lp* as an example.

Logical printers

The OkiLAN 7120e includes three logical printers.

- > *lp* must be used for printing a file created using the printer driver.
- > *sjis* must be used for printing a text file of Shift JIS Kanji code.
- > *euc* must be used for the printing a text file of the EUC Kanji code.

Logical printer	Printer function
lp	For direct output
sjis	For Shift JIS Kanji converted output
euc	For EUC Kanji converted output

- > *sjis* and *euc* function only as PostScript printers.

BSD-based UNIX

Print using the *lpr* command.

```
# lpr -PML8810_lp test.prn
```

If the *lprm* command is used, the print job is cancelled.

Example: To delete a print job (Job ID 123) on the ML8810_lp

```
# lprm -PML8810_lp 123
```

Verify the printer status using the *lpq* command.

- > The result of *lpq* may not be displayed correctly depending on UNIX operating system specification.
- > While the short format of *lpq* is a UNIX compatible format, the long format is unique to the OkiLAN 7120e.

Example of the short format: # *lpq -PML8810_lp*

Example of the long format: # *lpq -l -PML8810_lp*

System V-based UNIX

Print using the *lp* command.

```
# lp -d ML8810_lp test.prn
```

Delete a print job using cancel command.

Example: To delete a print job (Job ID 456) in the ML8810_lp

```
# cancel ML8810_lp -456
```

Verify the printer status using the *lpstat* command.

```
# lpstat -pML8810_lp
```

- > The result of *lpstat* may not be displayed correctly depending on UNIX operating system specification (e.g. Solaris 2.x).

FTP printing

FTP (File Transfer Protocol) is used for transferring a file with TCP/IP. If the print data is sent to a logical printer via FTP, it is printed.

Refer to the workstation's manual for details of the *ftp* command. The following explanation uses print file *test.prn* with printer name ML8810_lp as an example.

Logical directories

OkiLAN 7120e includes three logical directories.

lp must be used for printing a file created using the printer driver.

sjis must be used for printing a text file of Shift JIS Kanji code.

euc must be used for the printing a text file of the EUC Kanji code

Logical directory	Printer function
lp	For direct output
sjis	For Shift JIS Kanji converted output
euc	For EUC Kanji converted output

> *jis* and *euc* function only as PostScript printers.

> You can not send data to the root directory.

1. Login to the network interface card.

When printing with *ftp*, use any values for name and password. However, if the user name is [root], the password set under TELNET or the utility is required. See the appropriate section for details.

Example: Logging in with host name ML8810 (or IP address 192.168.20.127).

```
# ftp ML8810 (or ftp 192.168.20.127)
Connected to ML8810
220 EthernetBoard OkiLAN 7120e Ver 01.00 FTP Server
Name (ML8810:<none>) : root
331 Password required.
Password:<CR>
230 User Logged in
ftp>
```

The network card logical directory structure is hierarchical. Move to the logical directory; it is not possible to output print data to the root directory.

2. Move to the preferable logical directory using the *cd* command.

Example: moving to the lp directory and confirming the current directory.

```
ftp> cd /lp
250 Command OK.
ftp> pwd
257 "/lp" is current directory
ftp>
```

3. Configure the transfer mode

There are two types of transfer mode: BINARY mode, in which the file content is output as it is and ASCII mode, which converts the LF code to the CR+LF code. If a binary file converted by the printer driver is transferred, the transfer mode has to be BINARY mode.

Example: changing transfer mode to binary mode and verifying the current mode

```
ftp> type binary
200 Type set to I.
ftp> type
Using binary mode to transfer files.
ftp>
```

4. Transfer the print data to the network card using the *put* command. Two methods of file transfer using the *put* command are available.

Example: transferring print data test.prn

```
ftp> put test.prn
```

Example: transferring print data specified by absolute path/users/test/test.prn

```
ftp> put /users/test/test.prn /lp
```

5. Logout from the network card using the *quit* command

```
ftp> quit
```

Three states can be verified using the quote command *stat*: the IP address, login user name and transfer mode. In addition, printer status can be verified by specifying the directory after the *stat* (*lp*, *sjis*, *euc*).

Example: displaying network card status

```
ftp> quote stat
211-FTP server status:
Connected to: 192.168.20.10.000.00
User logged in: root
Transfer type: BINARY
Data connection: Closed.
211 End of status.
ftp>
```

Example: displaying the network card status (directory name: lp)

```
ftp> quote stat /lp
211-FTP directory status:
Ready
211 End of status
ftp>
```

TROUBLESHOOTING

The network addresses used in this manual are shown for example only. Network addresses used in your installation must be generated from your own network.

Self-diagnostic test

Printer does not print.

Ensure the printer emulation is set to **PS** or **Automatic**.

NG is printed in the Self-diagnostic test.

Flash ROM Check registers NG.

Confirm that the network interface card (NIC) is installed correctly and turn the printer off and on again.

Initialize the NIC.

TCP/IP

Computer cannot find the network interface card.

Turn the printer off and on again.

Confirm the network interface is enabled on the printer.

Check the network cable is correctly connected. The green LED near the network interface should be lit. Otherwise, change the cable and try again.

Check there is a response to the **PING** command.

Run the Self-diagnostic test.

Check the IP Address, Subnet Mask and Gateway are correct.

Check that the TCP/IP protocol is set to **Enable**.

Reset the network interface card to factory default settings.

If DHCP, BOOTP and RARP are not used, ensure they have been set to **Disable**.

Cannot print with lpr and ftp.

Turn the printer off and on again.

Check there is a response to the **ping** command.

Check the network cable is correctly connected.

Change the cable and try again.

Check the host name and IP address are configured in the workstation.

Check the printer port name is configured in the workstation.

There are three port names: **lp**, **euc** and **sjis**. Use **lp** by default as **euc** and **sjis** are specific to PostScript printers.

Incorrect User name on the banner page.

If printing with *lpr*, the User name printed is **unknown** and the Filename printed is the Spool file name.

If printing with FTP, the User name printed is the User name entered during FTP login and the File name printed is the Transmitted file name. If the Print Directory name is indicated in the **put** command, the File name is not printed. The Printer name printed is the Logical Directory name.

NetWare

Computer cannot find the network interface card.

Turn the printer off and on again.

Confirm the network interface is enabled on the printer.

Check the network cable is correctly connected. The green LED near the network interface should be lit. Otherwise, change the cable and try again.

If the standard configuration utility is used, check the NetWare network number in the environment settings.

If the NetWare protocol is disabled, set it to **Enable**.

Reset the network interface card to factory default settings.

The network interface card is identified by the setup utility but not by the NetWare server.

Start up the NetWare server and check the NIC configuration.

Check the NSAP packet on the NetWare server is not set to **Disable**.

Remote Server mode

Check the correct print server is operating on the file server.

Check the Print Server name operating on the File Server and the Print Server name set in the NIC are the same.

Check the Printer name displayed in the Print Server monitor of the File Server and the NetWare Port name set in the NIC are the same. If there are multiple network interface cards, configure the NetWare Port names to be different.

Print Server mode

Check the File Server name set in the NIC and on the File Server are the same.

Check the Printer name set in the File Server and the NetWare Port name set in the NIC are the same. If there are multiple NICs, configure the NetWare Port names to be different.

Check the NetWare login password is correct.

Check the Machine name is the same as the Print Server name set in the File Server.

Printer does not print.

Check the network cable is correctly connected.

Change the cable and try again.

Turn the printer off and on again.

Check the NIC is connected to the File Server.

Check the printer driver has been mapped to the correct netware queue.

PostScript error occurs if a Banner Page is printed.

A PostScript Banner page cannot be printed in NetWare 3.12 Remote Printer mode. If a PostScript printer is used and a Banner Page is printed, **PostScript error** is displayed. Turn the banner output **Off** in the client's printer settings.

NetBEUI

The network interface card is not identified.

Turn the printer off and on again.

Check the network cable is correctly connected.

Change the cable and try again.

Check **Microsoft network client** and **NetBEUI** have been added to the network section of the control panel.

Check the NetBEUI protocol is set to **Enable**.

Check the factory setting of the workgroup name is **PrintServer** and the computer name is ML+ the last six characters of the MAC address.

Check the computer name of the NIC is different from the computer name on the network.

Error writing to Prn1.

Check the printer is online.

If there is an error message indicating the paper has run out, add more paper and cancel the error.

Check whether another user is printing. Print after the other user has finished.

Glossary

NIC	Network Interface Card
NDS	Novell Directory Service
NDPS	Novell Distributed Print Services
iPrint	Internet Print
IPP	Internet Printing Protocol